Environmental Analysis of LANL Fire Response Activities

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The Special Environmental Analysis (SEA) prepared for the Department of Energy, National Nuclear Security Administration did not analyze the effects of the Cerro Grande Fire at Los Alamos National Laboratory. Rather, the SEA analyzed the effects of fire suppression and post-fire response activities.

The Cerro Grande Fire and the National Environmental Policy Act's "Alternative Arrangements"

Typically, major federal actions that would significantly affect the human environment are analyzed in an Environmental Impact Statement (EIS). When there are emergency circumstances, however, Council on Environmental Quality (CEQ) and Department of Energy (DOE) regulations permit "alternative arrangements" (40 CFR 1506.11 and 10 CFR 1021.343) to replace the normal EIS process.

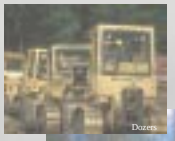
Because DOE urgently needed to address the effects of the Cerro Grande Fire, it invoked these emergency provisions of the CEQ and its own implementing regulations. In consultation with the CEQ, DOE directed the preparation of the SEA to analyze the effects of the actions taken to (1) suppress the fire and (2) reduce risks to life and property from potential erosion as a result of the Cerro Grande Fire.

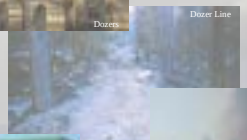
The SEA is only the third such document that has been prepared within the DOE complex, and it covers significantly larger areas and a wider range of actions than the two previous SEAs. The analysis includes the areas of LANL that were burned in the Cerro Grande Fire and those parts of LANL that were in danger of flooding, soil erosion, or other impacts in the aftermath of the fire. *The SEA examines the environmental impacts resulting from fire suppression at LANL and from DOE's actions to reduce the subsequent risk to life and property.*

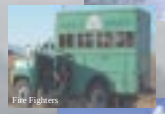
How did the SEA process differ from the normal EIS process?

An EIS…	The SEA…
Analyses a proposed action and one or more feasible alternatives	Analyzed actions already taken or proposed to be undertaken as part of the response to the emergency; alternatives were not analyzed within the document
Results in an agency decision to proceed with a course of action whose environmental impacts have been analyzed in the EIS	Described or projected the environmental impacts of actions that had already been taken; the SEA was not used as a decision document
Identifies mitigating measures that may be used to reduce the impacts of the agency's chosen course of action	Incorporated mitigating measures to the degree possible in the ongoing emergency response; identified future mitigating measures and monitoring necessary to support future NEPA analyses and agency decisions
Has a legally mandated schedule for public involvement	Used public meetings and outreach efforts that were part of the emergency response as the principle means of public involvement
Typically is completed within about 18 months	Was completed within 4 months

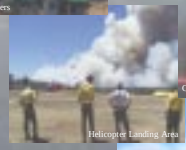
Fire Suppression Activities were undertaken by local and regional firefighters specializing in both structural and wildland fires.


Dozers


Dozer Line


Fire Fighters

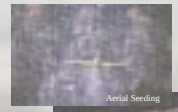

Crown Fire


Helicopter Landing Area

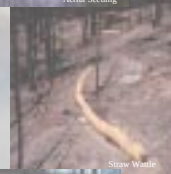

Water Drop

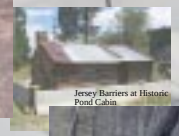
At The Peak of the fire approximately 1,600 firefighters and 100 pieces of equipment were employed to fight the blaze. Fuel breaks were cut, trees felled, helicopters and planes dropped water and slurry.

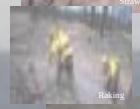
Post-Fire Response included activities conducted to allow safe re-occupancy of LANL facilities; monitoring and assessment; establishing a variety of staging areas; removal and stabilization of contaminants and other hazardous wastes and materials; and erosion and storm water controls.


Aerial Seeding


Straw Mulching


Straw Wattle


Jersey Barriers at Historic Pond Cabin

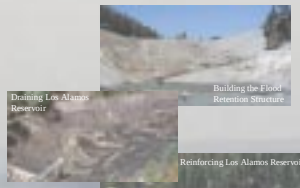

Raking


Tree Felling

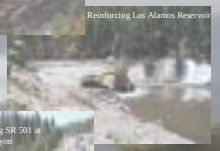

Seed Tents at Airport


Contour Tree Felling

Erosion Control Activities included raking, mulching, tree felling, and establishing temporary soil erosion deterrents such as straw wattles and rock and log check dams.


Draining Los Alamos Reservoir

Building the Flood Retention Structure


Reinforcing Los Alamos Reservoir


Reinforcing SR 501 at Water Canyon


Road Reinforcement


Los Alamos Weir

U.S. Army Corps of Engineer Construction Projects to control storm water runoff and reduce flood hazards were sited within affected watersheds in burned and unburned areas throughout LANL. Concrete and rock water control devices are expected to remain in place for 3 to 10 years.

Actions covered by the SEA encompassed a wide range of activities—from fire suppression to major post-fire construction. The individual projects had a series of adverse effects primarily resulting from soil and vegetation removal. Beneficial impacts included the protection of cultural resources, of substantial areas of floodplains and wetlands, and of government, tribal, and private property.

Resources	Fire Suppression	Post-Fire	
Land Use	Short-term reduction in trees in LANL buffer areas	Recreation trails remained closed until cleanup, mitigation completed	
Geology & Soils	Exposure of mineral soils, increased likelihood of erosion	Stabilize soils, reduce surface runoff	
Water Resources	Ammonium and sodium ferrocyanide from slurry can be toxic to aquatic organisms; LANL surface waters not known to receive slurry	Flood retention structures could lead to increased short-term ground-water recharge	
Floodplains & Wetlands	Ground disturbing activity caused small adverse effect on floodplains	Water control project construction altered ~ 20 ac of floodplains	
Biological Resources	Displaced local wildlife, may have some decline in use by bird species	Destruction of some Mexican spotted owl core nesting and roosting habitat	
Air Quality	Equipment use produced criteria air pollution emissions	Very short duration criteria pollutant and contaminant disturbance from construction	
Visual Resources	Cutting of firebreaks, fire roads	Short-term suspended particulate matter, new structures in previously minimally disturbed areas	
Cultural Resources	Staging area in TA-49 destroyed one, damaged two cultural resource sites	Adverse impacts to two historic structures at TA-02	
Other Resources	Lesser Impacts: Utilities/Infrastructure, Environmental Justice, Socioeconomics, Human Health, Environmental Restoration, Waste Management, Transportation		

The beneficial effects of fire suppression and post-fire rehabilitation are expected to outweigh the adverse effects.

SEA Mitigation Plan

- Monitor, re-contour, and reseed construction areas.
- Monitor restored burned areas that were re-seeded.
- Evaluate removal of flood control, erosion damage reduction features, and flood retention structure.
- Monitor for development of water pooling areas and wetlands associated with flood retention structure and other erosion damage reduction features.
- Review, evaluate, and stabilize pre-historic cultural resource sites within burned areas.
- Review, evaluate, and stabilize historic cultural resource sites within burned areas.
- Monitor soil, surface and ground water, and biota for contaminants.
- Monitor and amend best management practices at potential release sites.
- Assess and reevaluate management plans for various natural and cultural resources.

Poster design by Rhonda Robinson